REMARKS

Claims 1-45 are pending in the present application. Claims 1,11,12,14,15,19,29,30,31,32,33 have been amended and new claims 34-45 have been added. Reconsideration of the claims is respectfully requested.

I.   35 U.S.C. § 103 (Obviousness)

Claims 1-10, 12, 13, 15-18, 21-28, 29, 32 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Walker, USPN 6,279,017 filed 2/2/98.

Walker teaches an entirely new and different structure for presenting text to a reader in which each indented line corresponds to Walker's view of a natural unit of comprehension in an attempt to guide the reader's eye to in Walker's view the true inner structure of the text. As illustrated in Figures 3 and 4, Walker "presents text segments each on a new line and having a determined horizontal displacement based on the text specific attributes" (Abstract). As the Examiner noted "Sentences are segmented according to reader-approved rules. Each preposition folds a phrase in a predictable way, resulting in two text segments, each lying on a new line." Col 3, lines 58-61. By comparison, Applicant's invention is directed at improving the readability of text while maintaining the aesthetics accepted within the mainstream print community for text. For example, Applicants invention will preserve the left, right or full justification of text input and will maintain or possibly reduce the number of lines of text in a paragraph. Consequently, the methods for achieving these very different goals are fundamentally different.

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Claim 1 as amended specifies determining the phrases for "all the text input" and then "formatting said text input … according to said determined phrases". Walker does not do this. Because Walker is primarily interested in formatting the text input according to a minimum and a maximum line length to place separate phrases on separate and indented lines, Walker does not determine phrases in the text input that lie outside this window. Walker uses the primary and secondary folding rules to determine the best breakpoint that lies in the window, breaks the text into two segments and places each on a new line. Walker is looking only for points that indicate a new line should start, and ignores other phrasing. Walker continues to recursively process the second segment breaking it into two segments until the last segment does not exceed the minimum line length.

Another key distinction is that Applicant uses the function words and punctuation definitions from the library to determine phrases. The occurrence and/or pattern of these function words and punctuation definitions in the first plurality of words determine the existence of a phrase. By comparison Walker takes each word and uses the reader specified word sets and external sources to assign it a number of attributes including classifying the part of speech, noun, verb, etc (Step 126) (Col. 11, line 61 to Col. 12, line 15). The following from Walker clearly illustrates the difference, "In one embodiment, reader specified words sets are checked before dictionaries, and the dictionaries are only checked if needed words and attributes are not found in the reader specified words sets. Preferred embodiments utilize a hierarchy of databases to look up words." (Step 128) (Col 12, lines 61-

65). In Walker, if a word cannot be found in the reader specified words sets, other sources are searched until the word is found and attributes assigned. This approach requires Walker to disambiguate multiple parts of speech that may be assigned to each word (Step 130). Walker than constructs "enriched sentences" (Step 132) from all of these attributes (Col. 13, lines 27-28) that are used in conjunction with an ordered hierarchy of patterns to identify secondary folding points (Step 136) (Col. 14, lines 41-54). The emphasis is on the attributes of each word and the patterns of the attributes, not the occurrence of specified function words and punctuation definitions in an installed input vocabulary.

Therefore the rejection of claim 1 is respectfully traversed.

Claim 12 has been amended to specify "formatting said text input according to said determined phrases to maintain the aesthetic quality of the text input while enhancing readability." As the Examiner points out in rejecting claim 12, Walker folds a phrase resulting in two text segments, *each lying on a new line*. This is consistent with Walker's goal of creating a new and different structure for presenting text to a reader in which each line corresponds to Walker's view of a natural unit of comprehension but is wholly inconsistent with maintaining the aesthetic quality of the text input. Walker intentionally fractures the aesthetic quality of the text input to conform to his new structure.

Furthermore, Walker's process of user-adjusted folding rules and trial and error is not similar to using a neural network to determine phrasing. Walker merely allows the user to rewrite and reorder some of the folding rules. The

neural network is a preprogrammed automatic learning system that is self-trained trained using a library of function words and punctuation definitions on real text to recognize potential phrases. The neural network automatically processes the parsed text input to determine whether phrases exist. The neural network is not a sequential and hierarchical application of folding rules as taught by Walker. The application of a neural network to identify phrases in text is unique and in no way suggested by the teachings of Walker. In view of these arguments and those present for claim 1, the rejection of claim 12 as now amended is respectfully traversed.

Claim 15 has been amended to specify that the text is formatted "to maintain the aesthetic quality of the text input". The teachings of Walker are antithetical to maintaining the aesthetic quality of the text input and are not consistent with adjusting the size of spaces between words differently according to the determined phrases. As noted by the Examiner, Walker teaches "The visual attributes can include text segmentation, horizontal displacement of one line relative to another, text and background color, text brightness, and animation (Col 3, lines 27-31). This is consistent with Walker's premise of segmenting the text and placing each segment on a new line, indentation, color etc. can be used to further enhance the distinct lines. In view of these arguments and those present for claim 1, the rejection of claim 15 as now amended is respectfully traversed.

Claims 17 and 18 were rejected because Walker taught visual attributes including text segmentation, horizontal displacement of one line relative to another, text and background color, text brightness, and animation (Col 3,

lines 27-31). Applicant is claiming the selection of a particular font and font size, which is not taught by Walker.

Claim 29 as amended further specifies "a readability engine … for assigning values to the spaces between words in said plurality, said assigned value being the likelihood that the word is the beginning or end of a phrase" and "a formatter for formatting said text input by varying the spacing between words according to said assigned values." (p. 6, lines 20-22). Walker does not assign every space as a break point, only those that meet the primary or secondary folding criteria are assigned. More importantly, Walker assigns break points only to those spaces that fall in the length range specified for each line of displayed text. Because Walker is only with separating phrases onto different lines for display there is no reason to assign breakpoints to all spaces, particularly those outside the length range. To reiterate, Walker does not varying the spacing between words but rather separates phrase onto different lines. The rejection of claim 29 as now amended is respectfully traversed.

Claim 32 as amended specifies shortening spaces between words within phrases to achieve publishing economies of scale while minimizing degradation to text readability (see p. 7, lines 30-33, p. 8, l. 28 – p. 9, l. 24). As illustrated in numerous figures including Figures 3, 4 and 9, by segmenting text into text segments and placing each on a new line, Walker is substantially diminishing publishing economy. Specifically Walker is not shortening the spacing between words but rather moving the segments to a new line.

Claim 33 as amended specifies that the text input is formatted by varying the spaces between words according to the phrasing and that the variability in spacing is greater for poor readers than for good readers (p. 9, lines 29-33, p. 10, lines 29-34).

For the reasons provided to traverse the rejections to independent claims 1, 12, 29, 32 and 33 and for the additional features they recite, the rejections of the dependent claims are traversed. Applicant reserves the right to address the specific rejections raised by the Examiner if necessary and at the appropriate time to establish their patentability.

II. Allowable Subject Matter

Claims 11, 14, 19, 20, 30 and 31 were objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. According claims 11, 14, 19, 30 and 31 have been rewritten in independent form to include all such limitations.

III. New Claims

Claim 34 as dependent from claim 1 formats the text input by varying the space size between words by different amounts according to said determined phrases. (p. 8, lines 28-31, p. 9, lines 29-32).

Claim 35 as dependent from claim 1 formats the text input so that the formatted text input has the same or fewer lines of text in each formatted paragraph. (p. 8, lines 5-6) Walker greatly increases the number of lines by assigning each segment to a new line.

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Claim 36 as dependent from claim 1 formats the text to reduce the variation in print density from one line to the next (p. 8, lines 6-9). Walker makes no such effort.

Claim 37 as dependent from claim 1 detects rivers in the text input and manipulates the formatted text until the white space is varied sufficiently from line-to-line to eliminate the rivers (P. 8, lines 15-27). Claims 38 and 39 provide details for detecting and manipulating the rivers.

Claim 40 as dependent from claim 1 "varies spacing between words and physical features of letters within the text input according to the phrases determined over multiple lines of text" (p. 8, lines 1-27). Applicant is enhancing readability over multiple lines, for example a paragraph, by varying between word spacing and physical features of letters without destroying the underlying formatting and aesthetics of the original paragraph. Walker only considers text on a single line, breaks the text into segments (phrases), places them on different lines and adjusts the horizontal indentation.

Claim 41 as dependent from claim 12 specifies that the neural network provides the library (P. 8, line 1).

Claim 42 specifies assigning, using said function words and punctuation definitions, values to the spaces between words in said plurality, said assigned value being the likelihood that the word is the beginning or end of a phrase (p. 6, lines 20-24), repeating until all text has been analyzed and values assigned to all of the spaces between words, and formatting the text input according to the assigned values (p. 7, lines 28-29). Walker does not assign every space as a break point, only those that meet the primary or secondary folding criteria are assigned. More importantly, Walker assigns break points only to those

spaces that fall in the length range specified for each line of displayed text. Because Walker is concerned with separating phrases onto different lines for display there is no reason to assign breakpoints to all spaces, particularly those outside the length range.

Claim 43 specifies "examining said plurality or words to look for stored function words indicating a phrase" and "based on the examinations, assigning values to all of the spaces between the words in said plurality, said assigned value being the likelihood that the word is the beginning or end of a phrase" (p. 5, lines 33-55, p 6, lines 4-7, 14-15 and 20-21. Walker does not teach looking for stored words, assigning values to the spaces between words based on their occurrence and varying the spacing between words according to those values.

Claim 44 specifies "training a neural network on the library to recognize phrases in text and assign values to spaces between words in the phrases, said assigned value being the likelihood that the word is the beginning or end of a phrase" (p. 5, lines 17-20), "using the neural network to assign values to the spaces between words in said plurality" (p. 5, lines 19-20, p. 6, lines 20-21, p. 6, lines 31-33) and formatting said text input according to the assigned values to enhance readability. Such a use of a neural network is neither taught nor suggested by Walker's use of user-adjusted folding rules.

Claim 45 specifies assigning values to the spaces between words in said plurality, said assigned value being the likelihood that the word is the beginning or end of a phrase, repeating until all text has been analyzed and values assigned to all of the spaces between words, (p. 6, 20-22) and formatting the text input by varying the spacing
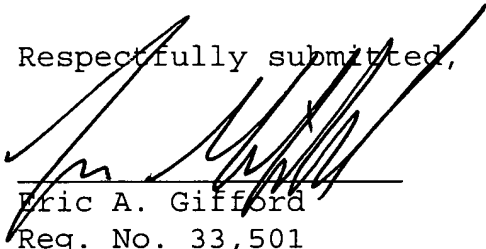
between words according to the assigned values. Walker does not assign every space as a break point, only those that meet the primary or secondary folding criteria are assigned. More importantly, Walker assigns break points only to those spaces that fall in the length range specified for each line of displayed text. Because Walker is concerned with separating phrases onto different lines for display there is no reason to assign breakpoints to all spaces, particularly those outside the length range.

Conclusion

It is respectfully urged that the subject application is patentable over the cited references and is now in condition for allowance.

The Examiner is invited to call the undersigned at the below listed telephone number if, in the opinion of the Examiner, such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

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